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INDIAN CEREMONIAL CANOE, SITKA HARBOR

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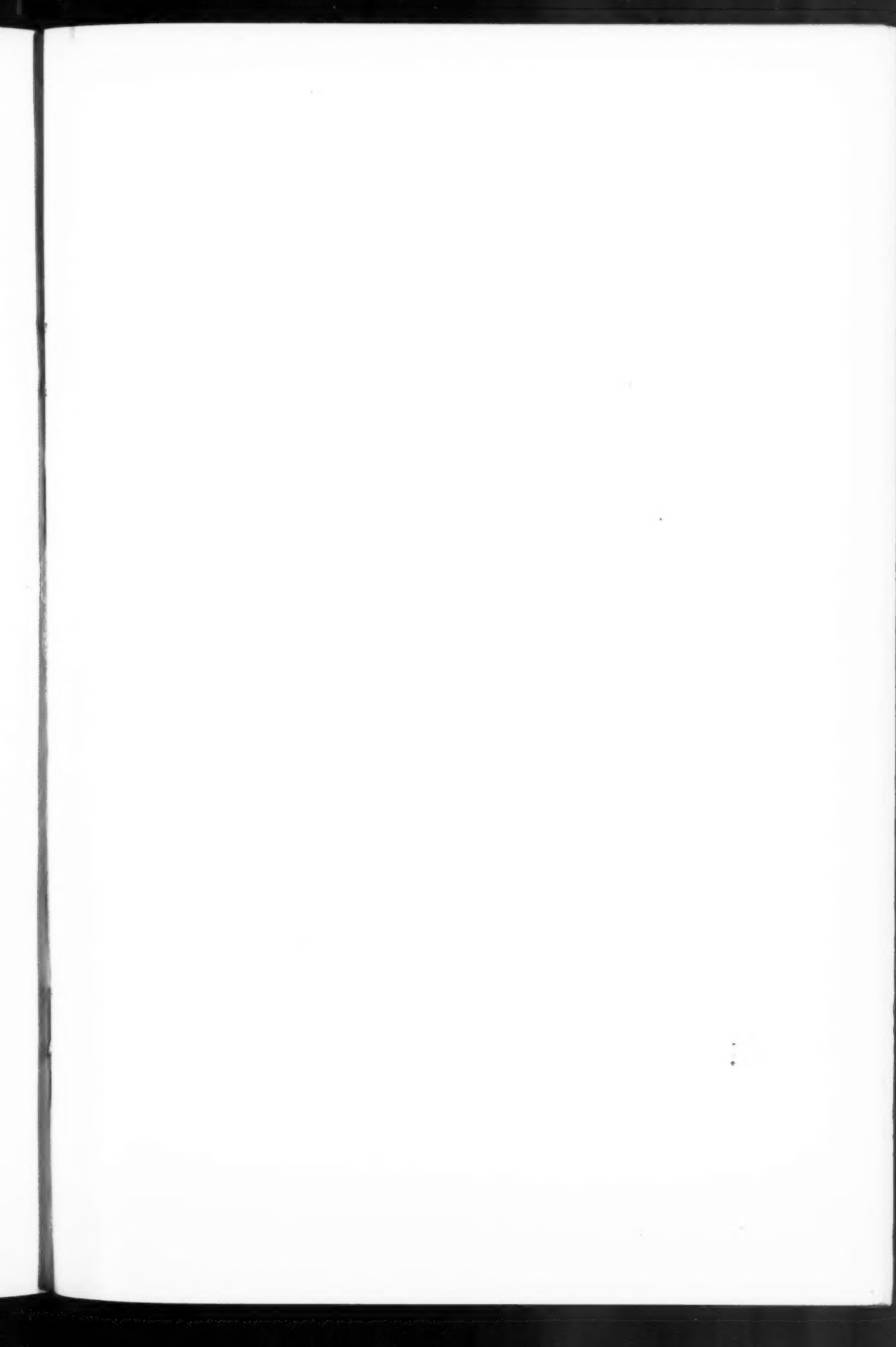
THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. The Museum authorities are dependent upon private subscriptions and the dues from members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world.

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Annual Members.....	\$ 10	Fellows.....	\$ 500
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The Museum is open free to the public on every day in the year.





THE CHIEF DIRECTS THE CEREMONY FROM THE STERN OF THE CANOE

Every article of dress and regalia from the smallest ivory ornament to the largest ceremonial robe is reproduced in durable materials and with fidelity to nature

—"Work on the Ceremonial Canoe," page 238

The American Museum Journal

VOL. X

DECEMBER, 1910

No. 8

HERCULEAN TASK IN MUSEUM EXHIBITION

FOREWORD REGARDING THE CEREMONIAL CANOE SCENE IN THE NORTH PACIFIC HALL

Photographs from the North Pacific Coast by Lieutenant George T. Emmons,
Museum photographs by Thomas Lunt

AN unusually large task in exhibition entered upon by the Museum is that of filling a Ceremonial Haida Canoe sixty-four and a half feet long with Indian figures, about forty in all, representative in physique, garb and action of the tribes of the North Pacific Coast. The conception is that of Director Hermon C. Bumpus, supervision of scientific details is under Lieutenant George T. Emmons, and the technical work is being carried out by the sculptor, Sigurd Neandross.

Lieutenant Emmons has spent some thirty years among the Indians of the Northwest Coast, working with deep interest along the lines covering their culture and is abundantly equipped in knowledge. The Museum will always be in his debt for invaluable service. Sigurd Neandross is an American sculptor of Norwegian parentage who has been honored at home and abroad. Notable among his works are a monument in the public square in Copenhagen — an imaginative figure of a nymph singing the song of the Vikings, a bust of a mother and child shown at the Berlin International in 1897 and now in the Kaiser Wilhelm Museum at Krefeld, Germany, and in this country a bronze statue of an officer of volunteers in the public square at Pottsville, Pennsylvania. Mr. Neandross has at present several large idealistic figures and groups in progress.

The Ceremonial Haida Canoe was made many years ago on the Skeena River near Port Essington on the Alaskan Coast and formed a part of the Powell collection secured by the Museum in 1883. The monstrous boat hung for many years from the ceiling of the hall, taking its present place in 1908. In this year decision was made to convert it into a great open exhibition case in which to set forth the primitive culture of the Northwest Coast Indians, and the idea advanced by Lieutenant Emmons was accepted that the exact expression of the exhibition should take the form of an institution known as the "potlatch," a ceremonial allowing attractive use of the rich Northwest Coast materials in the possession of the Museum.



SKETCH MODEL IN CLAY

Work was begun in the summer of 1908. The time represented by the scene is somewhat over a century ago when these Indians first came in contact with Europeans. The canoe is supposed to have reached the surf of the beach, being kept in position there by the paddlers holding water and the bow and stern men operating the poles while ceremonial speeches and dances are rehearsed. The result of the positions chosen for paddlers and polemen is not only an artistic one but gives opportunity for mechanically bracing the boat so that there can be no vibration of the exhibit, the poles being anchored in the floor and the paddles riveted in the cement base supporting the canoe.

Mr. Neandross has taken hold of the Museum's problem with unusual insight into the needs of the case, designing an immense composition with sweep and balance in the grouping, yet each figure an accurate study of tribe, suited in dress and action to its particular part in the meaning of the whole. The ideal of exhibition in a people's museum must be accuracy and completeness of truth in such combination with beauty, life and action that there is produced a resultant of human interest and educational force. Mr. Neandross has proved in his work as a sculptor before the world that he is on the way to mastery of a combination in art unusual and difficult, that is of realism and idealism. It is this power of the sculptor which is in considerable part bringing success to the Museum's giant task.

M. C. D.

The actual story of the great canoe's journey to New York is as follows: It was paddled by Haida Indians to Victoria; carried by schooner to Port Townsend, Puget Sound; by steamer to San Francisco; by Pacific mail steamer to Panama; across the Isthmus on the Panama Railroad from Panama to Colón, whence it was shipped on the deck of a Pacific mail steamer to New York. In crossing the Isthmus, to avoid injury during sharp turns, the canoe was adjusted on two platform cars, being fastened securely on the forward car and swinging loosely on greased guys on the rear car. Free transportation from San Francisco to New York was contributed by the President of the Pacific Mail Steamship Company.



A SUGGESTION OF THE PLAN

THE POTLATCH OF THE NORTH PACIFIC COAST

By Lieutenant George T. Emmons

THE potlatch is the distinctive feature of aboriginal life along the North Pacific Coast from the Strait of Fuca to the vicinity of Mt. St. Elias. It is the great giving ceremony when individuals

and families gladly impoverish themselves that the dead may be honored, the emblem of the clan exalted and social standing recognized or increased.



OF THE TLINGIT RACE

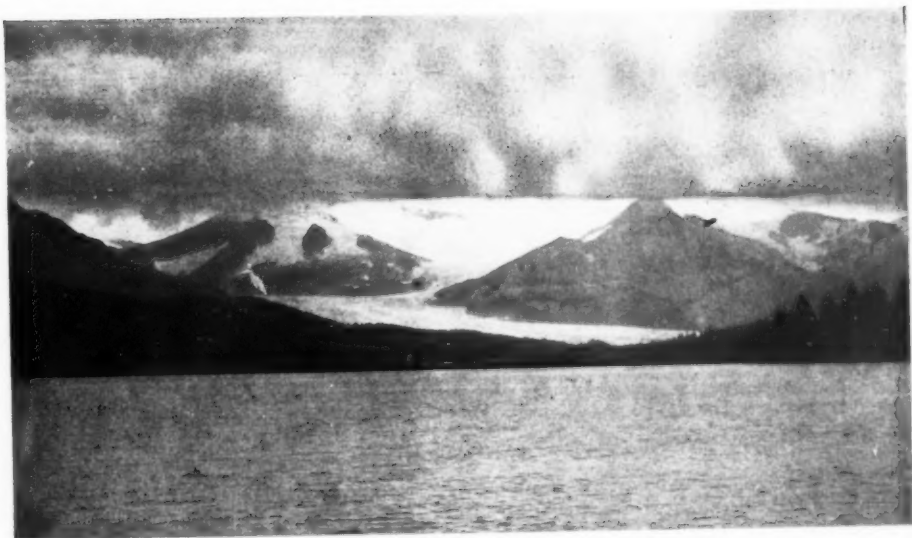
Underlying the potlatch as a social function is a deep religious fervor in the worship of ancestry and the communion with the dead

What was probably a simple feast for the dead in primitive days, in the progress of time has become a most complex observance which however is regulated by the strictest laws of etiquette and though varying somewhat in minor details among different tribes is recognized in the main by all.

The social organization of the Tlingit is founded upon matriarchy and consists of a number of clans or totemic families grouped under two exogamous phratries which intermarry and supplement each other upon all occasions of ceremony. In the building of the home, the erection of the heraldic or mortuary column (totem pole), the preparation and cremation of the dead, and the mutilations of the body, the service is invariably performed by those of the opposite party, and the potlatch is given in payment for these acts; but underlying the more social function is a deep religious fervor in the worship of ancestry and the communion with the dead. The food and tobacco that are cast into the fire become a spiritual administration to those who are ever present though invisible, and with each offering there is called the name of one departed who receives honor in proportion the gift.

The peculiar food and climatic conditions throughout this area have not only rendered this wholesale giving possible but also have encouraged its practice and development to an enormous degree. Here life is comparatively easy. The wonderful annual run of salmon, trout, herring and eulichon, the steady supply of halibut, cod, whale, seal and shell fish, the generous yield of berries, roots and green things, as well as the great forests of cedar, spruce and hemlock, and pure water ever at hand, combine to offer the greatest advantages with the least exertion. Along this Pacific coast there are but two seasons. During the milder and pleasanter period from April until October the food supply is procured, and the remainder of the year, not extreme in temperature but wet and stormy, becomes a time of leisure. These leisure months from October till May are devoted to social pleasures and ceremonies among which the potlatch holds the first place.

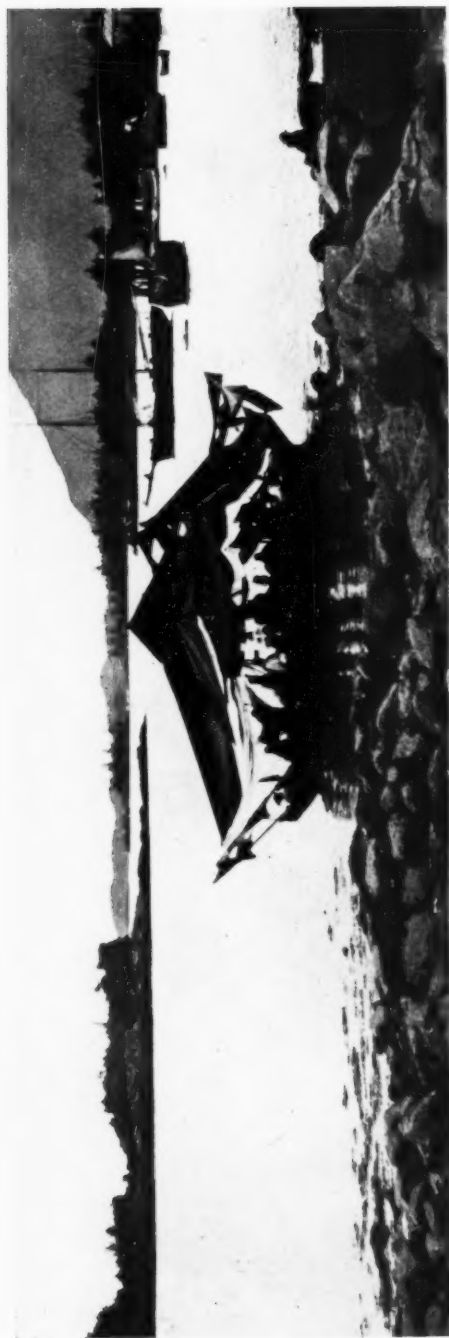
Preparations for the function may occupy much of a lifetime in the accumulation of material to be given away, and the invitations are personally delivered months or a year in advance. The guests, including generally two tribes or village clans, if living at a distance get ready as soon as they return from the summer camps. The canoes are repainted and decorated, dancing paraphernalia is unpacked and gone over, a sufficient food supply for the travel is put aside, and a programme of dances and songs with which to honor their host is arranged. Households embark together in the largest canoes and as in war parties they are under the direct supervision of their chief. They travel and camp together and practice their dances and songs en route. From time to time the host receives notification of their progress and when they are within one camp of their destination, he sends out envoys and food to them. The final day when they embark, the canoes are assigned their places with the chief leading. The men and women



IN THE LAND OF THE POTLATCH



TLINGIT CHILDREN



SITKA HARBOR AND CEREMONIAL CANOE

982

Sitka is now connected by an all-American cable with Seattle. This is but one indication of the rapid advances civilization is making on the North Pacific Coast and of the changes that are taking place in the culture of the Indian tribes there



SIGURD NEANDROSS, SCULPTOR

have put on their ceremonial dress, the face has been painted and the hair dressed with red ocher and birds' down. With drum, rattle and dance staff they take their places in the sterns of the canoes which now follow each other in column until near the village of their host when they form in line abreast and holding gunwale to gunwale stand in slowly to the shore, the occupants singing and dancing to the accompaniment of the drum. When nearing the beach those paddling hold water, the bow and stern men get out the poles and the line of boats is kept in position, while speeches are exchanged through several hours. With the signal to land the canoes are backed around stern first and beached, the villagers rush into the water to greet their friends and carry the party's belongings to the house which has been prepared for reception and all is confusion and bustle.

In early days the Tlingits had many slaves who paddled the war canoes besides performing all work for their masters. They were not permitted to take part in the ceremonies and were often sacrificed upon the occasion of the potlatch. The group which Mr. Neandross is so skillfully executing represents a Chilcat chief and his followers in ceremonial dress in the war canoe just before landing to attend a potlatch. The dress and materials represented on the figures are all from the North Pacific Coast and in the possession of the American Museum.

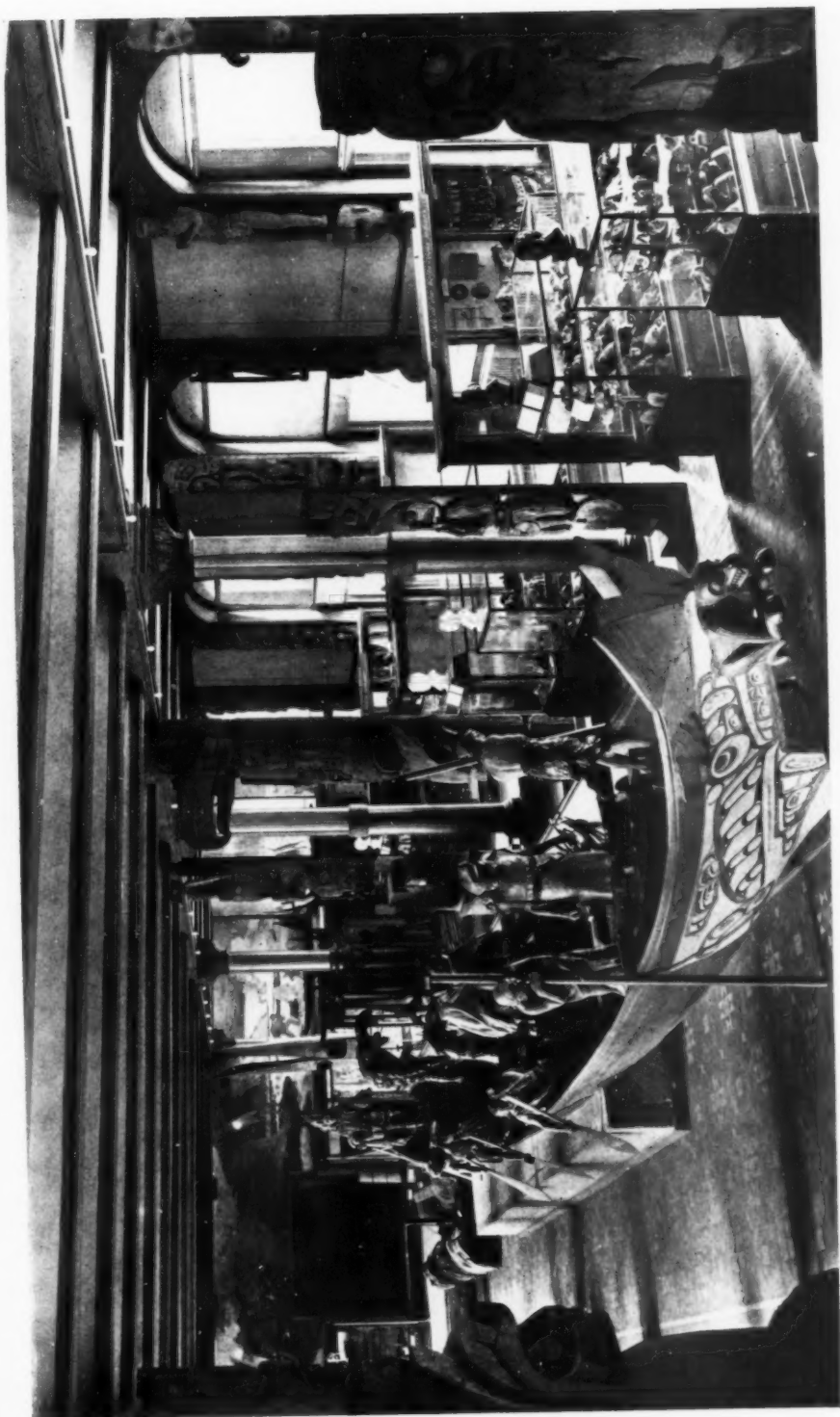


SUCH IS THE COUNTRY OF THE TLINGIT INDIANS



A POLEMAN IN THE CEREMONIAL CANOE. SHOWING THE SCULPTOR'S
SKILL IN MAKING CASTS OF FIGURES IN ACTION





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THE SAME IN 1910. ONE OF THE MOST IMPOSING OF THE MUSEUM'S EXHIBITION HALLS

The general plan and the decorative features are the conception of Director Hermon C. Bumpus; Stokes Eskimo paintings on the wall at the far end, mural canvases of North Pacific Indians in preparation by Will S. Taylor to take position in the spaces between the windows at right and left, totem poles set to form sections representative of the various tribes, the great ceremonial canoe in the center. The arrangement of the technical exhibits in the cases is the work of Harlan I. Smith, Associate Curator in the Department of Anthropology.

THE WORK ON THE CEREMONIAL CANOE

A MODIFIED METHOD OF MAKING PLASTER CASTS FROM LIFE

By Sigurd Neandross

THE Museum is continually carrying on experiments to find methods for reproducing objects which cannot in themselves, because of the very nature of the case, be exhibited, and when the work was started upon the Ceremonial Canoe Scene of the Chilcat Indians it was found that the earlier methods of cast taking were not entirely satisfactory.

The work as a whole brings an unusually large number of technical problems, for here must be reproduced some forty figures for exhibition without the protection of glass cases in the center of the North Pacific Coast Hall. The lack of protection means that not even the garments, the furs, the masks and regalia can be used, for a few years of such exposure would mean great deterioration in value of some of the richest possessions of the Museum. Therefore everything from the smallest ivory ornament to the largest ceremonial robe has to be reproduced and that in durable materials. The work presents unusual difficulties also, because in addition to its artistic scope, it has to be given great scientific value as a record of individual types of these Indian tribes, requiring at every step work most accurate of form and lifelike in coloring.

In the figure work a new method has been developed to a most successful working so that perfect life casts can be made. A paraffin spraying machine, the idea of which was obtained by Director Bumpus in Europe, has been utilized to cover the model with a coat of wax preliminary to the application of the plaster. Some time after the work was begun, however, a simple brush method of applying the paraffin was substituted for the machine. This yields equally good results and has the advantage of making the method possible for a man working alone in the studio or in the field. The method makes the process less disagreeable for the model than is the case in making the ordinary plaster mold. It is also possible to make larger casts in this manner than by the usual method, such as the full head and shoulders as in a portrait bust, even half the body or in fact the whole if the pose permits. One principal gain in plaster casts taken from molds in which the paraffin process is used is the advantage of accuracy of form whereas in the old method the weight of the plaster compresses and distorts all the softer parts of the body. The threads used to cut the mold being first laid over the model in the usual way, warm paraffin heated in a



SHAMAN'S RATTLE

One is the original, the other a reproduction in plaster. The half-tone shows only in part the striking similarity of the two because of lack of color



SHAMAN'S CEREMONIAL MASK

Lack of color and unequal lighting prevent the apparent identity that exists when the masks are taken in the hand. That on the right is the original

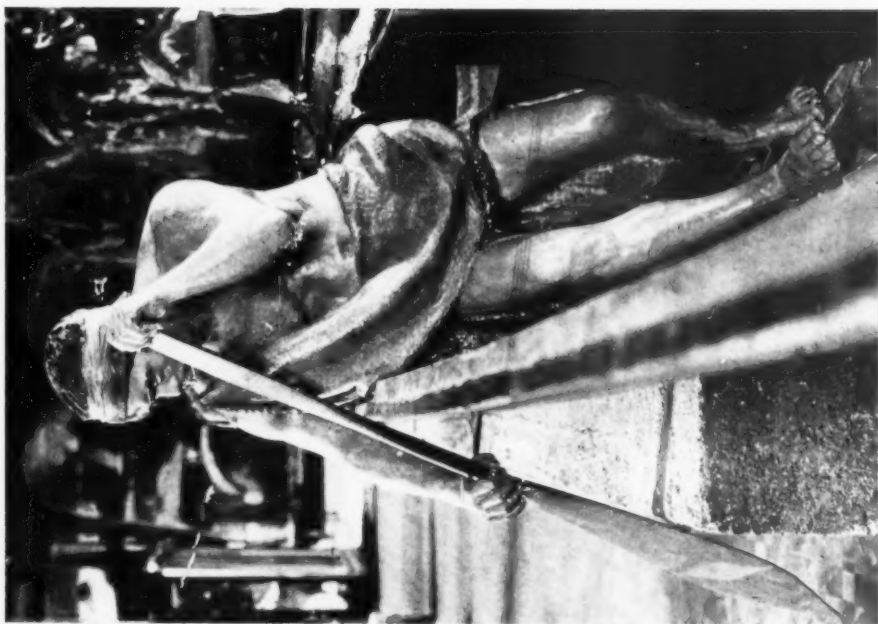


UNFINISHED FIGURE IN PLACE IN CANOE

Each figure is begun in the studio and put into the canoe incomplete to get perfect adjustment of pose and action in the particular spot to be occupied



241 A LATER STAGE IN THE WORK



THE FINISHED FIGURE



THE CEREMONIAL BEAR DANCER

double boiler is painted over the model with a soft brush. The work is started at the lowest parts; each stroke of the brush leaves a film which immediately becomes hard; the painting or splashing of the paraffin is continued until about one-fourth of an inch is covered over the model. A coat of this thickness will resist any pressure from the plaster which at this stage is applied over the paraffin and in such thickness as to insure the safe handling of the mold. Before the plaster becomes entirely hard the threads are drawn to cut the mold into manageable parts as in the ordinary "piece mold."

In the matter of dressing the figures it was soon found that plaster alone was too brittle and that for clothing or objects of regalia each specimen must have a different treatment. Woven cloth and skins are copied in burlap or caracas cloth which, dipped in a warm solution of glue water, is hung upon the plaster figure and allowed to stiffen there after adjustment in a natural arrangement of folds corresponding to pose and action. This garment can then be covered with a mixture of plaster and glue, and almost any texture imitated by applying the sticky composition with a modeling tool or

brush. The substance adheres to the fibres of the cloth, becomes tough and quite hard, suitable to take a coat of varnish and the color, and is remarkably well fitted for the work as it can be kept in plastic condition for three or four days. As to the color work on both garments and figures, it has proved better to put on a priming color in a higher key than nature after which a thin wash of shellac over the thoroughly dried color forms a backing for a stippling of transparent colors to accentuate the desired effect, eliminating opaque colors in this finishing work. Finally the oily finish of the new paint may be removed and a lifelike texture given to the surface by rubbing over lightly with pumice stone and turpentine.

Results essential to the representation of life as well as the work of suiting the subject, pose and dress to artistic uses must always remain to the skill of the artist working. The method is valuable in museum work and presents a possibility for a new level of accomplishment.

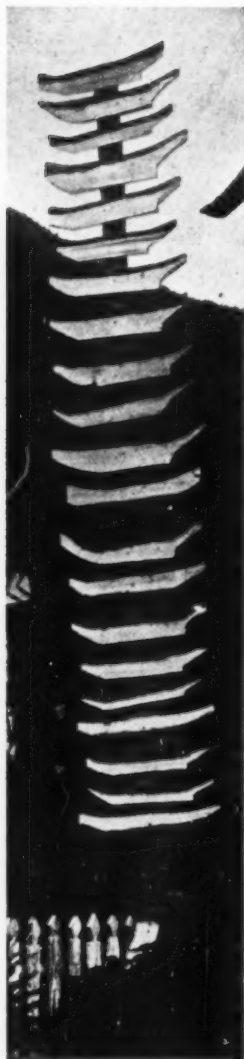
CANOES OF THE NORTH PACIFIC COAST INDIANS

By Harlan I. Smith

Photographs by the Author

A LONG the Pacific Coast from Puget Sound in Washington past British Columbia to Mt. McKinley in Alaska live seven great groups of sea-faring Indians and canoes make one of their most valuable possessions. Their canoes for use on the ocean differ from those for river navigation and those of the south differ from those of the north. Certain tribes have a characteristic type, but the Indians travel great distances and have traded their canoes from tribe to tribe, so that a given type may be used throughout the entire region.

The Haida of the islands of northern British Columbia and southern Alaska make an ocean-going canoe with a breakwater at the prow and both ends curving upward. Canoes of this type are sometimes only large enough for two or three people, while others, especially those formerly made for warfare, will hold as many as forty. In 1909 two of these canoes more than sixty feet long and with prows and sterns extending higher than a tall man's head were seen on the beach of the Kwakiutl village at Alert Bay. This Haida type is one of the most important and seaworthy of all canoes of the coast. The Tlingit Indians, who occupy the coast of Alaska from the Haida country to that of the Eskimo, own many Haida canoes although they make several kinds of their own.



A Grave Monument probably signifying that the deceased "potlatched" many canoe loads of property

The Chinook is another seaworthy and extensively used type. The Nootka of Cape Flattery and western Vancouver Island use it for whale hunting and launch it skillfully through the tremendous breakers constantly washing their coastline. They use a racing canoe also, somewhat similar in shape but long and narrow.

A river type rather smaller than the Chinook sea-going canoe is used by the Salish of Puget Sound and vicinity and also by the southern tribes of the Kwakiutl of northern Vancouver Island and the adjacent mainland. The prow which extends horizontally over the water has a deep notch in the end and meets the main part of the prow to form almost a right angle. A river canoe with spoon-shaped ends is found among the Bella Coola of the inlets of the northern Kwakiutl country, who are very skillful in navigating the swift rivers fed by melting glaciers. Such a canoe is usually poled, one man standing in the prow, another in the stern and poling on opposite sides. This type of river canoe is also used by the adjacent Kwakiutl tribes. The Salish Indians of the west coast of Washington have a canoe very much like it for river navigation but the prow and stern are like those of a scow.

Decoration of the canoes with carved and painted animal figures characteristic of this general region is common, especially among those of the Haida and Chinook types, and the canoes are always cared for as valuable property. Paths are cleared in the rocks on the beach so that the canoes may be drawn up without injury, and sometimes skidways are formed of cross poles

weighted at the ends with stones. A canoe party was observed to improvise such a skidway when landing at a strange beach. The men jumped

into the shallow water and carried their women ashore, then returned to the canoe, flung the dogs into the sea to swim ashore by themselves and next carried arm loads of small slabs to the women. These slabs the women placed crosswise on the beach and as the men pushed the canoe on to the improvised skidway, the women gathered up the slabs as fast as the canoe passed over them and ran ahead to repeat the operation.

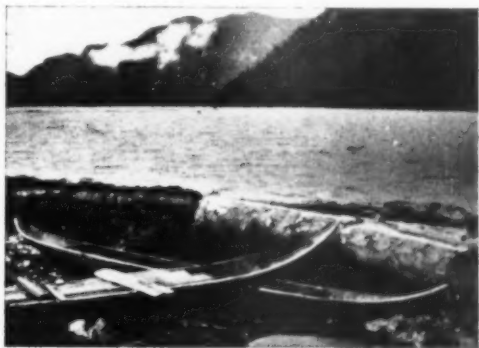
Curiously enough a canoe sometimes has a width greater than the diameter of the cedar tree from which it was dug out. To effect this result, the dug out canoe is filled with water, then hot stones are added, and after the wood is somewhat softened, the sides of the canoe are

pressed outward and fastened in place by means of thwarts which are tied in with spruce or cedar rootlets. When the canoe is nearly finished great care is taken in adzing it down, measures being used to get it to the proper thickness throughout. The surface of the canoe is usually charred, which not only serves to give it a good black color but tends to prevent it from decaying.

There is some doubt as to whether sails were used on any of the canoes before the Indians first saw white navigators, but it is certain that they were used before canvas was a commodity in the country, strips of cedar bark being woven together for the purpose as in some of the mats of to-day.



Chinook canoe. Note overhanging prow and vertical stern. Seaworthy and outside of the Haida the most extensively used



River canoes owned by Kwakiutl. Semi-circular in cross section, spoon-shaped at the ends. Poled by two men, one in the prow, one in the stern

THE NEW PLESIOSAUR

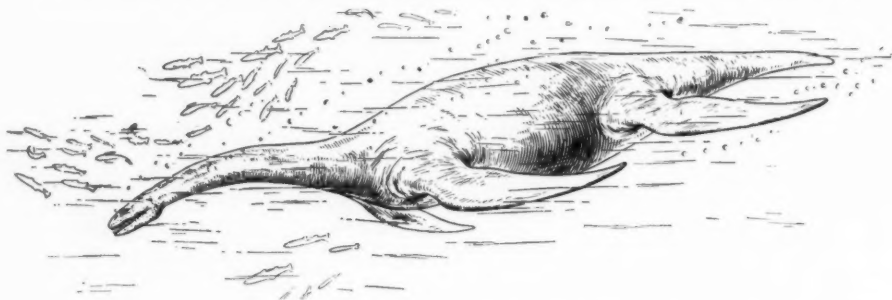
A GREAT MARINE REPTILE OF THE ANCIENT WORLD. IN APPEARANCE
COMPARABLE TO "A SNAKE THREADED THROUGH THE BODY OF A
TURTLE." THE FOSSIL SKELETON IS NOW ON EXHIBITION ON
THE FOURTH FLOOR OF THE MUSEUM

By W. D. Matthew

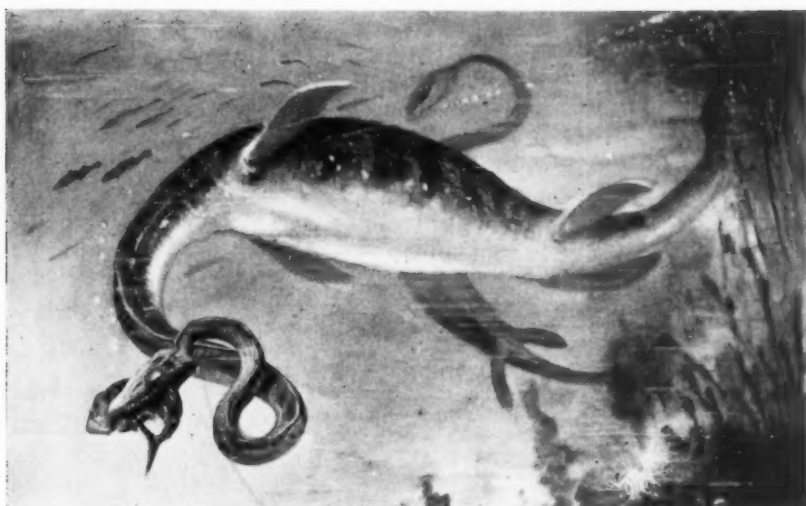
THE latest addition to the fossil skeletons on exhibition is a great marine reptile, eleven feet long, six feet and seven inches across from tip to tip of the paddles. It belongs to a group long since extinct and is very obviously unlike any living animal. The long flippers, broad compact body and short tail suggest a huge sea turtle; but there the resemblance ends, for the creature had no bony carapace or "shell" and the long stiff neck and small flattened head with sharp teeth flaring out from the jaws are very unlike those of any turtles.

This skeleton was found in an unusually complete condition and moreover, the bones were not distorted by crushing, which made it possible to articulate the skeleton in its true proportions and form, and mount it in a characteristic pose. Generally speaking skeletons as ancient as this one are found flattened in the rock, so that while they make a good bas-relief when the rock is chiseled away, they do not show the real form of the animal as when alive.

Plesiosaurs were both numerous and varied in the Age of Reptiles, and their remains have been found in marine formations of this era in all parts of the world. In the United States they occur in many localities from California to New Jersey, but the best specimens are from the Cretaceous formations of the Great Plains. The remains have been mostly fragmentary,



Sketch Restoration of the *Cryptoclidus*, by Edwin Christman. Note the small head, stiff neck and the turtle-like paddles. Based on the mounted skeleton in the American Museum

AMERICAN PLESIOSAUR *Elasmosaurus*

Restoration by Mr. Charles R. Knight. The long neck which was very likely much less flexible than here depicted, probably allowed this reptile to come up stealthily on prey from underneath while swimming near the bottom in shallow seas

though a few more or less complete skeletons are preserved in this and other museums in America.

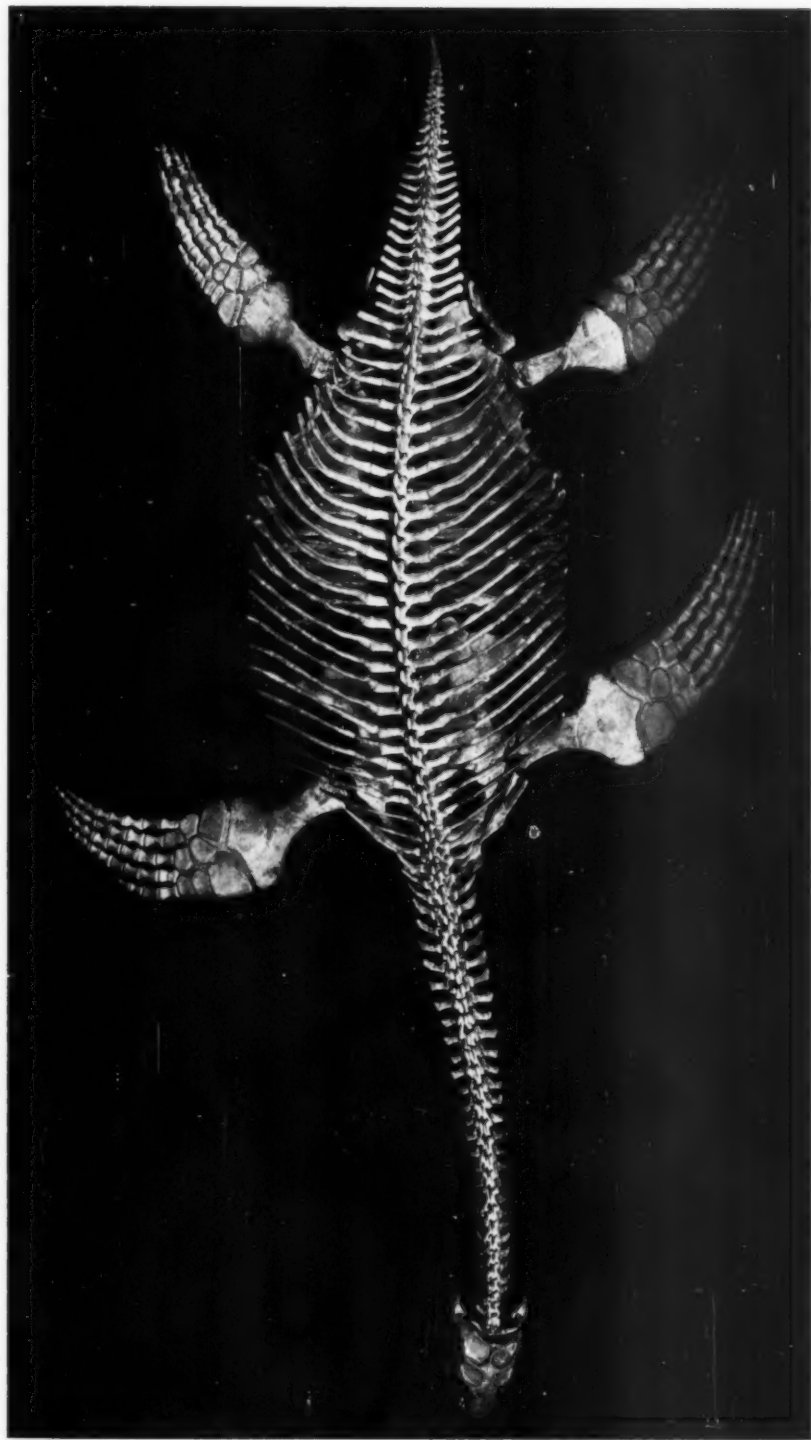
Many skeletons, crushed and flattened but splendidly preserved, have been obtained from the cliffs of Lyme Regis and Whitby in England and from the great slate quarries of Holzmaden in Württemberg, and are preserved in various museums in Europe and America. The clay pits near Peterborough, England, have yielded a large series of Plesiosaur skeletons, most of which are in the British Museum. Fragmentary remains have also been described from India, South America, Australia and New Zealand.

Some of the Plesiosaurs were of gigantic size, thirty to forty feet in length, but more commonly they were smaller, from six to fifteen feet. The length of neck and relative size of the head varied widely in different genera. The American *Elasmosaurus* was forty feet long with a small head and a neck twenty-two feet in length. The other extreme was *Pliosaurus*, equally huge in bulk but with the skull nearly five feet long and the neck only a foot and a half. The smaller Plesiosaurs were intermediate between these two extremes, but most of them had small heads.

The restoration of *Elasmosaurus*, made by Mr. Charles R. Knight under the direction of the late Professor Cope, is based upon a nearly complete skeleton in the Cope collection now in the American Museum. Studies by



Cryptoclidus oxoniensis of the Jurassic Period from the Oxford Clays near Peterborough, England. The mounting is by Mr. Charles Lang, under the scientific guidance of Mr. Barnum Brown, Assistant Curator, the pose being selected from careful studies of the skeleton and also of the movements of living sea turtles at the New York Aquarium



Professor Dames of Berlin show, however, that the neck was by no means as flexible as indicated by this restoration. This is proved by the character of the joints of the neck vertebrae, which are nearly flat instead of being ball-and-socket joints as in the neck of mammals and of most modern reptiles, or saddle-shaped joints as in birds. These flat joints, like those in the back of mammals, allow but a limited amount of motion at each joint, which must have been only partially offset by the great number of vertebrae in the neck of the Plesiosaurs.

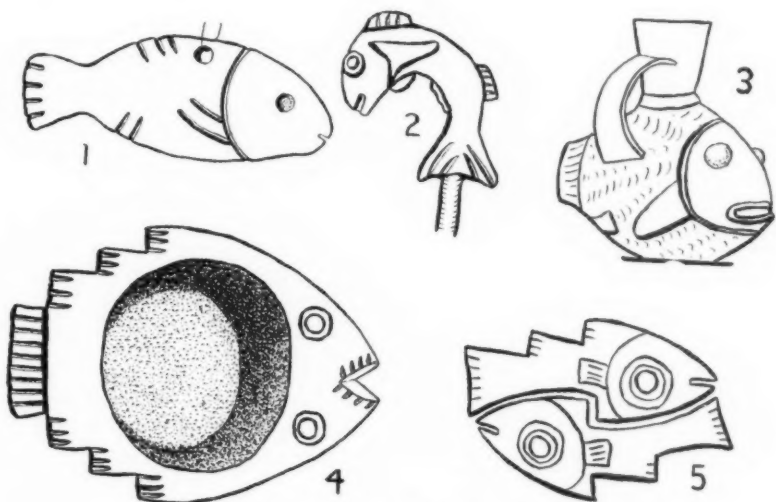
The name Plesio-saur or "near-lizard," given to these animals about a century ago, indicates that they are more like the modern reptiles than are the "fish-lizards" or Ichthyosaurs found in the same geologic formations. But they are not related to lizards any more than to snakes, crocodiles or turtles, and the name of "Great Sea Lizards" which was given to them in the popular natural history works of fifty years ago is an unfortunate one, because there was in the Reptilian Era a third group of great marine reptiles, the Mosasaurs, which were in fact relatives of the lizards and resembled them in many respects, although like Plesiosaurs and Ichthyosaurs, they were provided with swimming paddles instead of feet. Skeletons and restorations of Mosasaurs and Ichthyosaurs are exhibited on the walls of the east corridor near the elevator, and show the differences between these three types of great marine reptiles.

We must suppose that Plesiosaurs were carnivorous, the sharp-pointed flaring teeth being adapted to seize a quick-moving prey rather than to feed upon slow-moving shellfish or upon seaweeds. But from the proportions of the body and the analogy with turtles we may suppose that they swam slowly and usually near the bottom, coming up on their prey stealthily from underneath instead of pursuing it through the water like the swift Ichthyosaurs or the modern sharks and dolphins which these reptiles resembled. The long neck was too stiff for very quick movements, but would nevertheless be of great assistance both in capturing prey and in reaching the surface to breathe, a necessity for all reptiles. It is common to find with Plesiosaur skeletons a considerable number of pebbles enclosed within the body cavity. Sometimes a peck of these pebbles are found—hard, round, with polished surfaces, and varying in size from a hen's egg to a baseball. It is probable that these pebbles assisted digestion, as is the case in many birds, the pebbles seeming to crush and grind the hard parts of the food in the gizzard. If so we must suppose that the prey of the Plesiosaurs contained hard parts for which this kind of crushing was necessary. It has been suggested that they preyed in part upon the squid-like baculites and belemnites whose remains are exceedingly abundant in the same formations.

THE FISH DESIGN ON PERUVIAN MUMMY CLOTHS

AN EXPLANATION OF CERTAIN COMPLEX PATTERNS

OUR largest sources of knowledge of prehistoric Peruvian peoples are records from their graves, not written documents however, for these people of Peru had no written language, but records far more difficult to read with correctness, namely, vessels of clay, wood and brass, or fabrics wrapped about their mummies. In the coastal region of Peru, the people worshipped the sea and the fish as a symbol of the sea, differing in this respect, of course, from inland races. In this coastal region there-

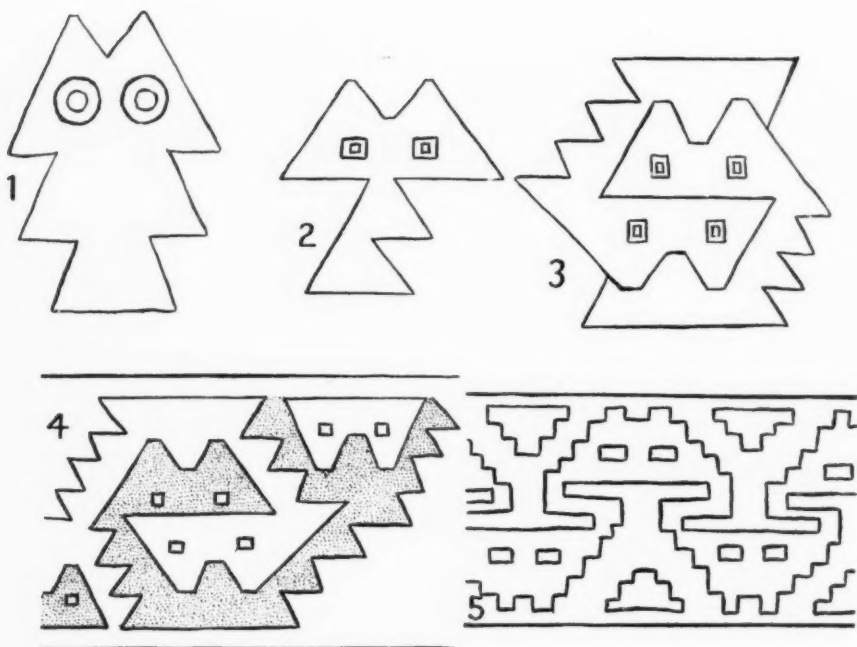


REALISTIC FISH DESIGNS FROM PREHISTORIC PERU

1 — Pendant cut from shell. 2 — Head of bronze implement. 3 — Clay vessel.
4 — Vessel of wood. 5 — Interlocked fish design from pottery

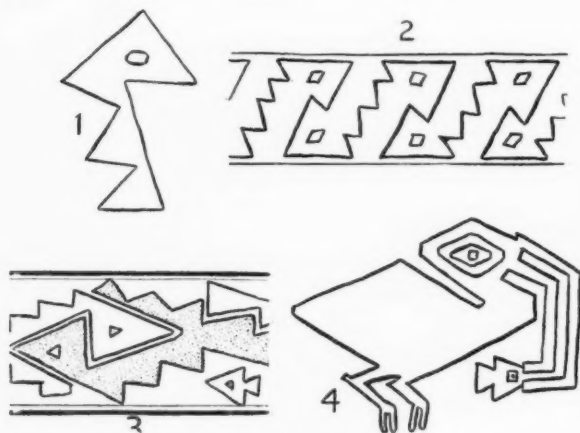
fore, as would be expected, the fish proves a favorite design in decorative art. Pottery, vessels of wood and metal, as well as large coarse pieces of cloth used to wrap about mummy bundles show fish forms with considerable fidelity to nature. Woven fabrics, on the other hand, are decorated more often with conventional designs, designs of much greater simplicity of outline, owing possibly in part to the difficulties in the way of technique in weaving.

Mr. Charles W. Mead of the Depart. of Anthropology has set forth in the Anniversary Volume of Essays presented to Professor Frederic Ward Putnam



CONVENTIONALIZED FISH DESIGNS ON PERUVIAN MUMMY CLOTHS

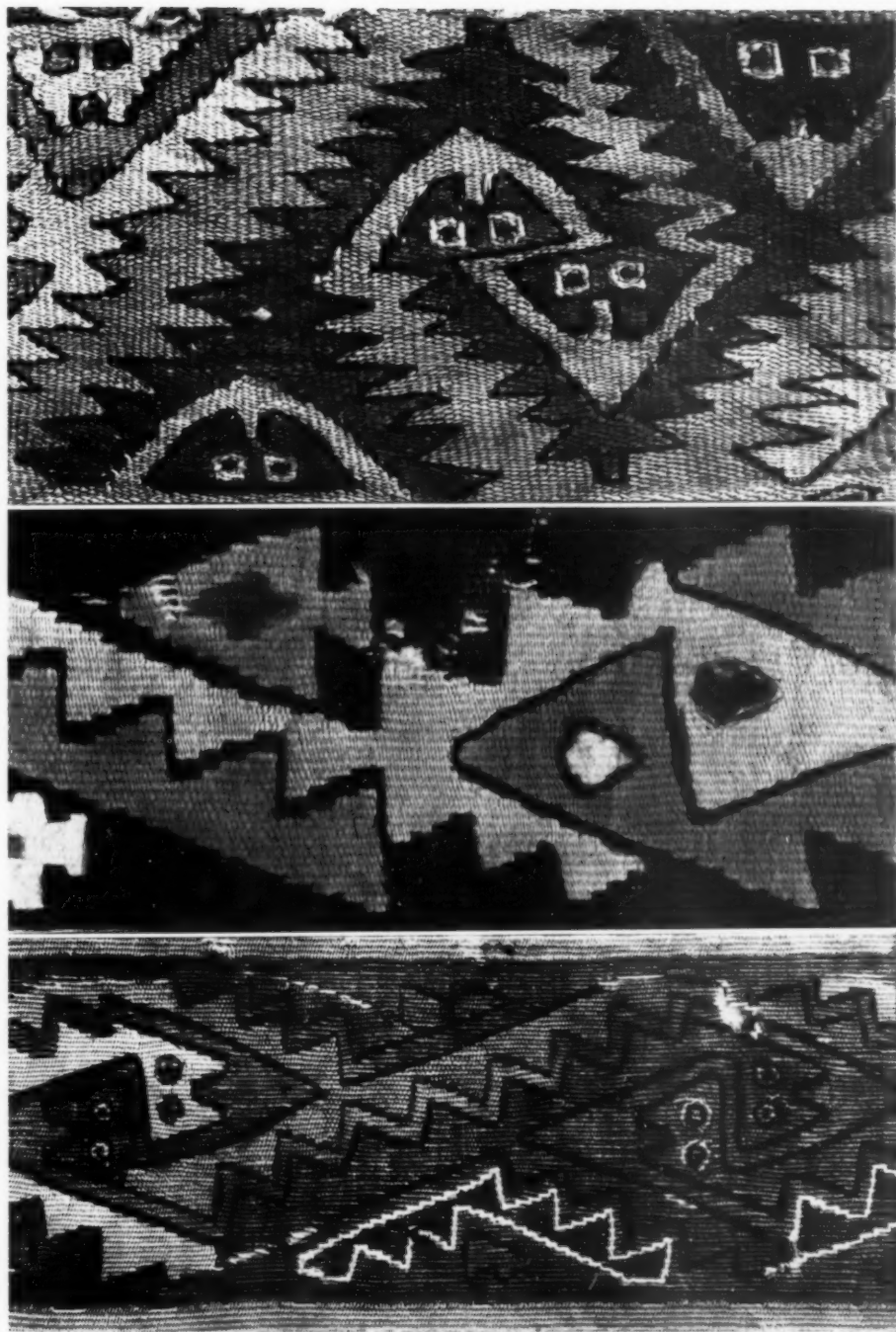
1—Only the eyes and general form of the fish are preserved. Compare with (4), p. 251. 2—Still more conventionalized, a key to many complex patterns as in (3), (4) and (5). Compare with (5), p. 251



OTHER CONVENTIONALIZED FISH DESIGNS

The first can be accepted after comparison with (2) above and with (5), p. 251. As a result the second and third also are revealed as fish designs. The fourth represents a pelican-like bird with a fish in its beak; compare with (3)

a very interesting explanation of certain of these complex designs on mummy cloths. He begins with examples in which the fish form is not to be doubted, and traces the design through others less simple to the most complex conventionalized patterns which in no way suggest the fish form, thus showing conclusively that many designs



PORTIONS OF PERUVIAN MUMMY CLOTHS

Chosen to show various highly conventionalized patterns of the interlocked fish design. The softened coloring of these fabrics is wonderfully beautiful

hitherto described as animal figures or designs derived from animal figures are in fact conventionalized fish forms.

The theory underlying the explanation is really that of art progression by degeneration, first promulgated in 1879 by Professor Putnam, who said:

"In the course of time, as art attained increased power of expression, it progressed beyond mere realism and led to the representation of an object by certain conventional characters without that close adherence to nature which was at first necessary to a clear understanding of the idea intended to be conveyed. Thus conventionalism began. Side by side with this conventional representation of objects are found realistic forms; conservatism which is such a strong characteristic of primitive peoples leading to both methods of expression at the same time."

Mr. Mead is the first to make the application of the theory to the evolution of mummy cloth designs; and he makes his point very clear. He has had unusual opportunity for study in the Museum. He has held under his charge for many years the Peruvian mummy cloths, which, if we except those of Berlin, form the world's largest collection. The collection is not wholly known, in fact, because many mummy bundles have never been opened, but still hold secret their fabrics of softened color and symbolic design.

AN INDIAN WHO HELPED THE MUSEUM

By Clark Wissler

NOT so very long ago there came to us the simple message that one of our Indian friends had set out from his tipi expecting to take a brief journey and had taken the long one that ended in the Beyond, the Sand Hills of his people. But a few days before there had arrived at the Museum marked as a gift to the writer a package containing a few specimens and carefully wrapped to themselves a few ordinary trinkets. The contrast between this token and those usually received, for there had been many, might have warned us had not our senses been deadened to the signs of his people. So his last message remains unanswered. It seems fitting, however, that some formal acknowledgment of his services to this Museum should be made. It was chiefly through him that the important medicine bundles in the Plains Indian collections were received, objects no white man should handle, much less own, and certainly not expose to public view. This collection, then, in so far as it represents the Blackfoot Indians is a memorial to him.

He was a priest, a medicine man of the old type, almost the last his race holds. He was born some eighty years ago into the Piegan division

of his people. At the proper age he put himself under the care of a famous medicine man and finally inherited the rituals and formula long used by his teacher. His face was rather feminine and commonplace, except the eyes. No one seeing him in a ceremony when the "spirit was with him" would ever forget the eyes that seemed to light up his whole face. Sharp, the well-known painter, has caught them fast on his canvas. His names, as with the Indian, changed at various periods of life. To us he wished to be known as "The Bear-One."

We first saw The-Bear-One in one of his ceremonies. He wore a robe having blue emblems upon a yellow ground, a simple head-dress of running fisher skins and carried a small feather wand. Through the open front of the robe his body appeared painted an even yellow with star and moon signs on the breast. This robe and its accessories may be seen in the Plains Hall. Not long after, we called upon him. The interview was uneventful and confined to a discussion of our purpose to record faithfully certain facts of Indian life and to preserve certain objects pertaining thereto. While he was respectfully attentive, he seemed not particularly interested. On leaving we remarked that his robe would be a fitting object for our collection. He made no reply, but a burst of laughter from his woman indicated the absurdity of the request. We went our way and the man and his robe were forgotten for a time. One day we received an unexpected call from him, the woman trudging at his heels. He stated that we had asked the robe of him, that such was quite unusual, but that our purpose was creditable; that we were sincere in our efforts to learn the ways of his people, that the memory of them be not lost. Hence, we could have the robe under certain conditions. If he gave the robe to an Indian, he would lose the right to its ceremonial use and the protection of the powers of nature associated therewith; but that he would part with it to us at the cost of making another if we would follow out certain instructions as to its care at our hands and would agree to leave behind the full right to the ceremony. The restrictions as to the care of the robe were necessarily discussed fully, we feeling that no agreement should be made that could not be kept. At one stage of this he became indignant and rose to his feet with the remark, "You came to me with a request, I have come to you with that which you requested and now you receive me as a mere bargainer." A frank apology on our part saved the day and at last common ground was found. At a sign the woman took from under her shawl the old buffalo-hide case containing the robe and placed it in my hands. The-Bear-One urged me to open it and see that all was correct. It was. Without further comment the pair went their way.

We went about our work and waited. The important things were yet to be done. Unless we could get the ritual of that robe, the significance of

its use and its many symbols, we should fail to do what our profession considers most important. By and by we were invited to call on The-Bear-One. This time we got the head-dress and wand upon similar terms. Then followed much visiting between us, but nothing seemed to open the way to the information we desired. He always got away from any discussion that pointed that way. However, he gave us much important data about the ordinary affairs of life. One day he turned to us with, "Let us make an agreement: you always do as I say, I always do as you say." It is useless to try to describe the reaction to this remark. We stood facing each other with long unflinching gaze, each searching the other to the depths. On our part prudence, caution, reason all shouted, "No, never!" Yet — so far we had failed to get a single important medicine bundle, nothing except these few things of his, information concerning them not at all; such a compact would get them all; but the price! At last we ventured, "To such requests as are reasonable to the minds of the asked." Something like reproach and pain flashed across his face, but he clasped my hand and departed. On reflection the rashness of even this impressed us and we resolved not to call upon him for aid except in last resort. In late years he often spoke among his people of this compact as a bond that had never been broken. During the years he made three formal requests of us and we on our part two. One we turned down as impracticable, but made a fair return of another sort.

In association with his robe and head-dress the visitor will see other objects, such as a drum, a whistle of human bone, and the skin of an albino magpie, in short his complete outfit as a medicine man. The information we secured in time: the dreams and visions he experienced, his fasting, how he learned his powers. This we cannot enter upon here. Suffice it to say that the spirit of the sun, the moon, the various stars, the earth, the water and much that pertains to each have some place in the formula of which the objects were, even to him, but crude symbols. He once charged me that if these objects should be rudely handled there would follow an annoying storm of rain and wind. Strangely enough, our workmen in the Museum have twice shifted these objects and in each case the city was swept by a severe storm within two days. Each time we notified our friend of the coincidence; happenings of which he frequently spoke with a pleasure that comes from a faith confirmed.

He believed that he had the knowledge to control the weather and other of nature's works. For many years he had been the leading one to keep the days fair during the annual sun dance ceremonies. One season a young medicine man talked about among his people that he would show his power at the sun dance and bring the rain in spite of our friend. When the day came the horizon was banked with clouds and mist hung upon the hillsides.

The young aspirant appeared in the open among the tipis with a small pipe, dancing, shouting and holding the pipe toward the heavy clouds. Our friend was not idle, but after his way sat modestly in his tipi with his drum — the one in the case — tapping it softly and mumbling his songs and formula. All day long the clouds lowered and rose, of mist there was much, but of rain scarcely a drop. It was an unusual day. Even the prudent old weather prophet would have advised umbrellas and mackintoshes. At intervals the young braggart danced in public, our friend kept to his tipi. After two days of this uncertain weather, the sun came forth bold and clear. Then our friend laid his drum aside and the braggart sought solace in heavy wagers at the wheel games.

At another time our friend accepted a challenge as to which could make it rain more heavily. His rival worked his formula and there was a pour. Then our friend took up his drum and began. Soon there were torrents. The waters rose in all the tipis save his own, but he continued tapping his drum heedless of his fleeing neighbors. What matter if his tipi had been set on a small knoll, thanks to his keen-eyed woman?

The little drum in the case could doubtless tell us many other tales, but they are lost forever. Remember that our friend was but an old unwashed, blanket-covered Indian addicted to the prejudice and folly of his kind, and not the ideal these lines may entice you to imagine. Once he was heard to say that he had lived to know deeply two white men, one daubed in color, one otherwise; that he himself dabbled in medicine, but that each after his way attained his ends. Yes, each has his method — art, science, the medicine formula of the Indian.

There are other objects in the hall that stand as silent memorials to this crude Indian and his time, each object bearing its own unwritten lore and none the less important in science if occasionally the cause of sentiment.

ETHNOLOGICAL COLLECTION FROM CHILI

THE Museum has recently received from Dr. F. D. Aller of Gatico, Chili, a valuable ethnological collection of one hundred and fifty specimens, some of which belong to prehistoric times, others to the sixteenth century. These specimens are much like those in the Museum's collection from Arica, Antofagasta and Chuquicamata, Chili. Of unusual interest are the objects taken from a woman's grave, in particular a work basket of the same form as those found all over the Peruvian coast. In the basket are feather plumes, bone charms and bone awls for basket work, spindles wound with thread, spindle whorls and a finely netted bag used probably for carrying coca.

C. W. M.

TEACHERS' DAY

QUOTATION FROM THE TALK OF GEORGE H. SHERWOOD, CURATOR OF THE DEPARTMENT OF EDUCATION

The Teachers' Day exercises were attended and appreciated in a way gratifying to the Museum, which on its part made every effort to set forth in detail both the institution's desire and its wealth of equipment for coöperation with the City in educational work along lines of natural science.— Editor.

ONE of the purposes of the Founders of this Museum was to establish an institution which would encourage and develop a study of natural science. I believe that they had in mind an intimate relation between the Museum and the public schools, and our Trustees have faithfully carried out this idea of the Founders. The work of the Department of Education in this connection falls under two heads: first, what we are prepared to do for the teachers in the building, and second, what we are prepared to do in the schools.

Considering first the work in the building.—We give every fall and spring to school children a series of lectures prepared with the idea of supplementing the work in your class rooms. Topics are chosen for the most part by the teachers and are fully illustrated. Most of you, I know, are sending your pupils to these. In addition to this, largely through the generosity of Dr. A. S. Bickmore, who was founder and first curator of our Department of Education, we have a large series of lantern slides, between thirty and forty thousand. Any teacher may come to our building, select slides, make an appointment, bring her class to the building and there give a lecture on the subject she has chosen. The Museum furnishes lecture room, slides and operator and if the teacher does not care to do the talking will provide also a person to do the talking.

We have started in a small way a room for the children. In this room are modelling tools and drawing instruments and animals of interest to the children. The purpose is recreative, but a competent instructor is always there to direct the play and recreation. And more recently we have opened a room for the blind. In that room are objects which can be handled and which, through the coöperation of the Library for the Blind, have been labelled in raised type.

Second, the work done in the schools.—I refer to the circulating collections sent out to the public schools. When the Department of Education of New York City placed in your hands its first syllabus of nature study, it made no provision to supply you with material. As a result we had numer-

ous applications for assistance. Director Bumpus felt that here was an opportunity to carry out the idea of the Founders and prepared ten small cases of birds. These were sent to the schools. From that beginning has grown the work of to-day, but instead of ten cases there are more than four hundred cases and we are supplying monthly nearly four hundred schools of the city. You are better able than I to judge of the practical use of these collections. We have felt encouraged by a letter that came from a little girl in one of the East side schools. The teacher had evidently used a collection of our birds for a lesson in language which had taken the form of a letter to the Director of the Museum: "My dear Director Bumpus, I am very glad that you sent the birds to us. We have enjoyed them very much. I think they are all beautiful, but of all the birds I have studied the one I like the best is the English sparrow because it is the only one I have ever seen."

NEWS FROM THE ARCTIC EXPEDITION

SINCE the last issue of the *JOURNAL*, letters have been received from the Stefánsson-Anderson Expedition. That from Mr. Stefánsson was written April 25 at a place fifty miles on the way to the Coppermine and holds out bright prospects for the journey, in part because he had fortunately been able to purchase fifty pounds of pemmican from a sailor at Cape Parry. The expedition was about to start on the remaining three hundred miles but with only three Eskimo assistants, great difficulty having been experienced in getting any Eskimos to go because of fear of violence from the Coronation Gulf people. Of these three he writes that Natkutjiak is the sort who will go anywhere, Tannaumirk will follow anywhere and Pannigabluk, the woman, is used to starving, having been near death from hunger half a dozen times. The country through which they will pass has many lakes and rivers unknown to geographers. Mr. Stefánsson is supplied with charts of the region made by Dr. Richardson in 1846 and he considers them authoritative, saying, "They omit many things, but do not put down things not here. For the huge non-existent R. la Roncière, Dr. Richardson is not to blame. His charts are innocent of it, though all our newer maps have it."

The letter from Dr. Anderson was written August 13. It announces that at last he has in hand the supplies sent by the Museum in 1908 and 1909. He had not yet heard from Mr. Stefánsson, who, however, had told him not to worry if he did not hear until Christmas.

THE NEW LOON GROUP

THE loon's penetrating call, reported to sound like demoniac laughter, is well known to people visiting northern lakes. Few see the bird, however. If they do catch a brief glimpse of it, they decide that its neat tailor-like appearance, with head black, breast clear white, back closely polka-dotted with white, belies the weirdness of its call. Loons are noted for skill in diving and swimming, being able to proceed rapidly under



A PORTION OF THE NEW HABITAT BIRD GROUP

several fathoms of water. It is said that they have been caught with hooks set for trout eighty feet below the surface in New York lakes. It is known that many loons winter at sea fifty miles or more from land.

Two loons are shown in the new habitat bird group which is reproduced from studies made in June, 1909, on the New Hampshire shore of Lake

Umbagog. One bird is standing erect over its two large eggs in a nest of leaves on the ground; the other just coming up from the water is half hidden by a ridge of moss. That it is June is proclaimed in the foreground of the group by a clump of blossoming viburnum, by tall purple rhodora and on the ground waxen flowers of bunchberry. Rocks at the edge of the lake make gradual the transition to the painted background where the artist, Mr. Hobart Nichols, has portrayed a portion of the lake, its irregular evergreen-covered projections of land and its still reaches of water leading to a farther shore and mountains in the distance.

This group is the last in the series of habitat bird groups installed under the supervision of Mr. Frank M. Chapman, the habitat being the work of Mr. J. D. Figgins and Mr. A. E. Butler. That the loon group has been made possible is due to the generosity of the benefactors to whom the Museum is indebted for the whole series.

WOMEN NOT CONSERVATIONISTS

From an Address by Frank M. Chapman

INSECTS cost a loss to our forests of \$100,000,000 a year. The Biological Survey of the United States has shown that the stomach of a single cedar bird contained 100 canker worms, that of a cuckoo 250 tent caterpillars, of a chickadee 454 plant lice, of a flicker 1,000 chinch bugs, and of a scarlet tanager 630 gypsy moth caterpillars. A tanager eats moth caterpillars at the rate of 2,100 an hour. A Maryland yellow-throat ate 3,500 plant lice in forty minutes.

Yet chief among the enemies of the birds and therefore of the forests is woman. In shopping districts where I have made ornithological studies on women's hats, I found woodpeckers, flycatchers, orioles, bobolinks, meadow larks, tree and white-throated sparrows, snow buntings, waxwings, swallows, tanagers, warblers, thrashers, robins and bluebirds by scores and hundreds. The destructive power of fashion is shown in the case of the ptarmigan grouse. In winter it is snowy white and its plumage may be dyed any color. The flesh of the birds is good food, but the food demand did not drain the supply. When the feathers became fashionable, however, 2,000,000 were killed in four years; one shipment contained ten tons of wings. Twenty thousand paradise birds are shipped annually. Of the thousands of herons which glorified our marshes only a few remain since the egret plumes became the fashion. In one year Venezuela exported 1,538,000 plumes of herons, and these figures do not take into account possibly double that number of young herons which starved in their nests for lack of care.

MUSEUM NEWS NOTES

The following have been elected recently to membership in the Museum: Life Members, MESSRS. BENJAMIN WALWORTH ARNOLD, DICKSON Q. BROWN, CHARLES W. HARKNESS, D. P. KINGSLEY and T. B. PARKER, CAPTAIN JOHN J. PHELPS and COLONEL ROBERT M. THOMPSON; Sustaining Member, MR. RALPH WURTS-DUNDAS; and Annual Members, His EXCELLENCY WILLIAM H. TAFT, MESSRS. WILLIAM A. ADRIANCE, MARSHAL CHANDLER BACON, F. O. BEZNER, L. F. BRAINE, W. B. COGSWELL, FRANK R. CORDLEY, JULIEN T. DAVIES, J. BENJAMIN DIMMICK, F. N. DOUBLEDAY, H. C. DRAYTON, WILLIAM SEYMOUR EDWARDS, THOMAS W. FARNAM, WILLIAM T. FLOYD, J. R. GLADDING, HENRY J. S. HALL, PHILIP W. HENRY, A. F. HOLDEN, L. E. HOLDEN, JOHN H. ISELIN, EDWARD H. KIDDER, OTTO R. KOECHL, TOWNSEND LAWRENCE, ARTHUR LEHMAN, ARTHUR LINCOLN, LUCIUS N. LITTAUER, R. S. LOVETT, ALFRED BISHOP MASON, STEPHEN O. METCALF, ROBERT GRIER MONROE, J. SEAVER PAGE, EDWARD C. PERKINS, GEORGE E. PERKINS, LEWIS A. PLATT, GEORGE E. SCHANCK, ALFRED L. SELIGMAN, GEORGE ST. JOHN SHEFFIELD, LOUIS MORRIS STARR, SAMUEL THORNE, JR., THOMAS G. WASHBURN, ALEXANDER M. WHITE, LUCIUS WILMERDING, ORME WILSON, JR., and JOHN YARD; REV. DR. GEORGE C. YEISLEY, DRS. CHARLES L. DANA and JOHN E. WILSON, GENERAL CHARLES F. ROE and MMES. CHARLES OTIS KIMBALL, JOHN MURRAY MITCHELL, and E. L. BREESE NORRIE.

THE following members of the Board of Trustees contributed toward the expense of Teachers' Day: Messrs. Cleveland H. Dodge, J. Pierpont Morgan, Adrien Iselin, Jr., Seth Low, J. Hampden Robb and Henry F. Osborn.

At the Quarterly Meeting of the Board of Trustees of the Museum held on November 14 the following changes were made in the scientific staff: Dr. Louis Hussakof was appointed Associate Curator of Fossil Fishes; Mr. John T. Nichols, Assistant Curator of Recent Fishes; and Dr. William K. Gregory, Assistant in the Department of Vertebrate Palæontology.

THREE members of the Scientific Staff, Dr. J. A. Allen, Curator of the Department of Mammalogy, Mr. Frank M. Chapman, Curator and Mr. W. DeW. Miller, Assistant in the Department of Ornithology, attended the 28th annual meeting of the American Ornithologists' Union in Washington, November 15-17. Dr. Allen was the first President of the Union, serving for seven years (1883-1891); Mr. Chapman is now first Vice-President.

MR. BARNUM BROWN of the Department of Vertebrate Palaeontology has recently returned from an expedition to Montana which completes the work on the Laramie formation begun in 1902 and carried on continuously since that time except during the year 1907. The most important specimen obtained was an unusually complete skeleton of *Trachodon*. As a result of the work in Montana the Museum will be able to restore and mount all of the chief representatives of dinosaur life during the Laramie Cretaceous period which marked the close of dinosaur life in the United States.

THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES met at the Museum October 25. Besides other business a resolution was passed expressing to Mrs. Dutcher the gloom cast upon the meeting by the illness of William Dutcher, the Association's President. The lecture in the evening was given by Professor John B. Watson of Johns Hopkins University on the "Facilities for the Study of Animal Behavior on the Dry Tortugas Bird Reservation."

MR. W. DEW. MILLER acted recently as expert ornithologist to pass on the legality of sale of about one hundred species of birds submitted by milliners of the State. Mr. Miller identified the skins and reported that under the ruling of the Shea bill passed by the last Legislature, forty-three among them could not be used on women's hats. Among these were Bohemian waxwing, snow bunting, swift, magpie, sooty and white terns, green heron and white heron, screech owl, condor, jay and skylark.

THE MUSEUM LIBRARY lacks for its files volumes II to VIII inclusive of the JOURNAL. The librarian would be grateful if Members who have any of these numbers and do not care to keep them would send them to the Museum.

LECTURE ANNOUNCEMENTS

MEMBER'S COURSE

The following illustrated lectures of the course remain to be given to Members of the Museum and persons holding complimentary tickets given them by Members.

Thursday evenings at 8:15 o'clock. Doors open at 7:45.

December 1 — MR. FRANK M. CHAPMAN, "From Sea-level to Snow-line in Vera Cruz, Mexico."

December 8 — MR. JAMES L. CLARK, "Snap Shots from British East Africa."

December 15 — DR. PLINY E. GODDARD, "Nomadics of the Southwest."

December 22 — MR. ROY C. ANDREWS. Subject to be announced.

PUPIL'S COURSE

These lectures are open to the pupils of the public schools when accompanied by their teachers and to the children of Members of the Museum on presentation of Membership tickets.

Lectures begin at 4 o'clock.

- December 2 — MRS. AGNES L. ROESLER, "Children of All Nations."
 December 5 — MR. WALTER GRANGER, "Transportation: Past and Present."
 December 7 — DR. LOUIS HUSSAKOF, "A Trip to Europe."
 December 9 — MR. BARNUM BROWN, "Life on the Plains."

PEOPLE'S COURSE

Given in coöperation with the City Department of Education.
 Saturday evenings at 8:15 o'clock. Doors open at 7:30.

The last three of a course of five lectures on "Biology" by MR. BENJAMIN C. GRUENBERG. Illustrated by stereopticon views.

- December 3 — "Life Defensive: Resisting the Environment."
 December 10 — "Life Victorious: Mastering the Environment."
 December 17 — "Heredity."

Tuesday evenings at 8:15 o'clock. Doors open at 7:30. Illustrated.

- December 6 — MR. CHARLES T. HILL, "The Post-Roads of the High Alps."
 December 13 — DR. JOHN C. BOWKER, "The Passion Play."

LEGAL HOLIDAY COURSE

Fully illustrated. Open free to the public. Tickets not required.
 Lectures begin at 3:15 p. m. Doors open at 2:45 p. m.

- December 26 — DR. LOUIS HUSSAKOF, "The Fish and Fisheries of the Southern States."
 January 2 — MR. ROY W. MINER, "Corals and Coral Islands."
 February 22 — PROF. C-E. A. WINSLOW, "Insect-Carriers of Disease."

Public meetings of the New York Academy of Sciences and its Affiliated Societies will be held at the Museum according to the usual schedule. Programmes of meetings are published in the weekly *Bulletin* of the Academy.

The American Museum Journal

MARY CYNTHIA DICKERSON, *Editor*.

FRANK M. CHAPMAN, }
 LOUIS P. GRATACAP, } *Advisory Board.*
 WILLIAM K. GREGORY, }

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FOR EDVCATION
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